

mentioned earlier, which revealed that the most striking RTE/WRO effect was a broad-band increase in power across the whole spectrum for RTEs at C4, on the right hemisphere. Also, the analysis showed that C3 evidenced a steady decrease of power from this left-hemisphere site in frequencies above 25 Hz as the subject progressed from Condition One through Condition Three.

The differential performance of the State versus the Prediction discriminant models in classifying Prediction Task data suggests that the central nervous system may code awareness of the contents of consciousness (i.e., State data) in a way different from the way it codes the processing of visuospatial information (i.e., Prediction data).

One center frequency consistently selected by the discriminant model, across the anterior-posterior axis (Fz, Pz, Oz and FPz-Oz), was 40 Hz. This is important because of evidence linking 40 Hz (and adjacent frequencies between 36 and 44 Hz) to problem-solving activity, characterized by focused attention (D.E. Sheer, Focused arousal and 40 Hz EEG. In R.M. Knights and D.J. Bakker [Eds.], The Neuropsychology of Learning Disorders. Baltimore: University Park Press, 1976).

Alpha activity ( $8.78 \pm 0.98$  Hz) was selected by the Prediction, though not the State, discriminant models. This frequency, which occurs during internal, as compared to external focusing of attention (W.J. Ray and H.W. Cole, EEG alpha reflects attentional demands, and beta activity reflects emotional and cognitive processes. Science, 1985, 228, 750-752), was not found by the State model. This suggests that active, internal information-processing is required for performance of the clairvoyance but not the State task.

Differences in DC effects, results of t-tests of the frequency spectra, SDA classifications of subjective states, and performance--all lent support to the phenomenological model and its relationship to objective psi behavior. Also, the results suggest that by employing the methodology presented here it is possible to monitor for the presence of psi-mediated behavior.

Editors' Note: As this volume was going to press, the authors discovered a problem with the statistical programs which affects the results. Therefore, this report should be considered tentative, pending reanalysis of the data.

#### BRIEF PAPERS\*

#### DREAM STATES AND ESP: A DISTANCE EXPERIMENT FEATURING A PURE CLAIRVOYANCE, FREE-RESPONSE DESIGN

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At the 1982 PA Convention in Cambridge (RIP 1982, 228-230) we reported a study of ESP in dreams composed of 100 trials carried out under a simple, but watertight, postal protocol. A rank-sum analysis yielded an overall p value of 0.030, one-tailed. The p value reached a peak of 0.0015 at Trial 64, but (coinciding with a crisis in B.M.'s life) scoring thereafter fell to chance level.

We here report a second series of 100 trials, spanning the period November 1982 to July 1987. The results for GESp and clairvoyance in the original series had been closely comparable, and it was decided to concentrate upon clairvoyance designs in the present work. Four experimental modes were explored: clairvoyance ("C," three runs), clairvoyance with deferred selection of controls ("CD," two runs), pure clairvoyance ("PC," three runs), and precognition ("PRE," two runs).

The basic clairvoyance procedure was as follows. For each trial a new judging pool was assembled, consisting of five maximally contrasting, or randomly selected, picture postcards. Having alerted B.M. at her home in the London area, J.B., at his home in Edinburgh, would randomly select a target card and insert it, sight unseen, into his "psi box." B.M. would then, over a period of several days, record her impressions from selected dreams and hypnagogic imagery. Eventually B.M. would open the duplicate judging pool and rank the five pictures in order of their correspondence to the dream protocol. She would then post the dream protocol with her ranking to J.B.

In the "deferred" mode, the four control cards were not specified until after B.M. had had an opportunity to record her

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impressions, in the hope of reducing displacement effects. A system of concealed code tags and complement judging pools was employed to preserve rigor. For the pure clairvoyance runs a complex design, devised by B.M., was used.

#### The Testing of Pure Clairvoyance

The question whether pure clairvoyance exists is of crucial importance. If clairvoyance were to be demonstrated under conditions that eliminated telepathy, precognition, and feedback channels, the observational theories would be largely undermined. More generally, theoretical systems based on the assumption that clairvoyance is impossible would need to be modified.

Until recently, reported studies of pure clairvoyance have been confined to forced-choice designs. Tyrrell's experiments with an electrical apparatus in the 1930s included a pure clairvoyance condition under which highly significant results were claimed. In 1941 Humphrey and Pratt reported an apparently successful "chute" experiment in which subjects "posted" concealed ESP cards through labeled openings. With the advent of computers the testing of pure clairvoyance became greatly simplified, and some successful studies have been reported.

The disadvantage of computer designs, in particular, is the sterile nature of the task. Yet the idea of testing pure clairvoyance using free-response target material hardly seemed feasible. However, in JASPR (1985, 493-500), Elisabeth Targ et al. reported an ingenious attempt to do just that. The procedure involved a complex system of target handling and encoding such that no one person ever had sufficient information to deduce the result of any trial. The results appeared to support the hypothesis that clairvoyance can function in the absence of feedback.

The devising of a pure clairvoyance design suitable for home dream research demanded a very different approach. A solution emerged in combining the "chute" idea of Humphrey and Pratt with the technique of associational remote viewing (in which a forced-choice task is mediated through free response to arbitrarily associated material). B.M.'s procedure preserves the rank ordering of five pictures. On each trial, an envelope containing 15 identical "target pointers," divided into sets of 5, 4, 3, 2, and 1, is placed in the psi box. At the end of a run, the 150 target pointers are sorted into five response boxes (labeled A, B, C, D, E) according to how B.M. has voted on each judging pool; the rank sum can then be determined. Optionally, a target-response matrix may be compiled--but this would allow the recovery of individual results by collation with the response data.

#### A Selective Approach to Dream Recall

The standard experimental approach to the investigation of dream ESP was set by the pioneering research at the Maimonides Dream Laboratory during the 1960s. Typically, the subject's dream phases are monitored by EEG equipment and the whole dream record constitutes the ESP response.

In the context of home dream research, it is more appropriate to select dreams that relate specifically to the experiment: dreams about meeting the experimenter, doing psi experiments, opening boxes, drawing pictures, playing cards, and so on. Symbolic "tracers"--notably the telephone in B.M.'s dreams--may serve as psi indicators. Unusually bizarre, or mysterious, dreams also seem worth recording. Hypnagogic imagery, lucid dreams and--above all--translucid (out-of-body) experiences merit special attention.

Here in illustration are a few excerpts from the dream chronicle:

Trial 6: translucid dream. "I imagined my hand floating down on to the psi box (which stood on the floor beside the bed). I couldn't get the box open at first--until I remembered to relax. Inside, my hand encountered a mass of cloth--then, within this, something hard. I tried to run my fingers over the object, but again my efforts were inhibited until I relaxed. I then sensed a sea-shell ... I awoke suddenly."

Trial 16: hypnagogic image. The word "QUOTATION." It occurred to me that QN might be the code for the target card--and so it proved. (Each of the 30 cards in the grand pool carried a two-consonant identity code; my chance of a hit was thus effectively 1 in 30.)

Trial 29: nonlucid dream. "I came across you [J.B.] mixing bright yellow ice cream, which I understood to have been made from crushed fish. This was apparently intended to be eaten as a prize if I scored a hit.... I mixed a portion of the ice cream in a large leaf and tasted it: it had that characteristic tang (not fishy) that ice cream always has in my dreams. I gazed down into a pool at a shoal of fishes, searching for a yellow fish--but they were all grey." This bizarre dream left no room for doubt as to which picture to choose from the judging pool: the target was a black and white photograph of a model of the Beatles' "Yellow Submarine."

Trial 80: nonlucid dream. A "security officer" for ESP data "made a photocopy of a card bearing a black-and-white drawing. She lay the card askew on the duplicator plate, and before I had a chance to adjust it the copy had been done. To my astonishment the duplicate picture came out straight!" The "skew" idea was very

strong and served to pinpoint a photograph of the "Leaning Tower of Pisa."

### Results

The ten runs produced the following rank sums:

27 (CD)	29 (CD)	32 (C)	26 (PRE)	37 (PRE)
33 (C)	33 (C)	29 (PC)	33 (PC)	27 (PC)

The total rank sum of 306 (MCE = 300) comprises 22 rank 1s, 16 rank 2s, 19 rank 3s, 20 rank 4s and 23 rank 5s. The results are not significant on a rank-sum analysis, either overall or in any of the four experimental modes.

The "deferred" mode showed initial promise: in the first run, four direct hits were scored on the eight trials for which the deferred condition held.

Run-score variance. The total run-score variance is 116 against chance expectation of 200. The effect is even more pronounced at the half-run level: observed 80, expected 200,  $p < 0.01$ , two-tailed (Monte Carlo method). This post-hoc finding suggests a psi effect in "balancing out" the rank sums: the variance at the trial level being greater than expectation. Exclusion of the precognition runs (which B.M. regarded as merely "baseline" runs) would give for the half-run score variance: observed 43, expected 160,  $p < 0.005$ , two-tailed.

Displacement and psi-missing. Some striking hits were obtained on attractive control pictures, and it is surmised that displacement may have vitiated the results. The drawback with clairvoyance designs is that there is little difference in status between target and controls: the whole array may thus constitute an ESP stimulus. (See, e.g., Schmeidler, *JASPR*, 1985, 13-26.)

There are also indications that B.M. tends to react against disliked conditions or minor hitches in procedure by producing an extreme miss. The occurrence of a familiar target picture in runs utilizing a mixture of new and reused material proved a decidedly unfavorable condition, accounting for a disproportionate number of the rank 5s.

### Conclusion

This study is presented principally for its methodological interest. It shows, after all, that it is possible to conduct dream research without elaborate apparatus using a protocol that eliminates sensory leakage. At a rate of 200 trials in eight years, our

experiment may well be the slowest on record! However, given a more concentrated effort there is no reason why the comparative speed of the Maimonides work could not be emulated.

Dreams remain the "royal road," not only to the unconscious but to insight into the manifestation of psi. Home dream research has much to contribute to this exciting field.

### IN SEARCH OF "PSYCHIC SIGNATURES" IN RANDOM DATA

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A pilot experiment was conducted to determine (1) if subjects interacting with a hardware random number generator (RNG) in a psi game experiment produce temporal patterning in the random data and (2) whether such patterns, if present, are unique enough to allow the computerized "blind matching" of two independent subject-generated data sets when embedded in a matrix of 20 decoy data sets.

By epoch averaging the data, it was anticipated that, if psi processes are operational, idiosyncratic temporal patterning would emerge in putative random data. One may view the present methodology as within-subject majority voting of data at selected experimental epochs.

### Hypotheses

(1) Correlations of signal-averaged data derived from two independent experimental series will show that subjects, when interacting with randomly generated data through a "gating" process, idiosyncratically pattern such data and that such patterns are consistent within individuals.

(2) Within the context of a matrix of 20 sets of computer-simulated game data, individual subject's second data set ("replication") will be identifiable as the match to first data set ("template") of that given individual by the highest correlation coefficient (i.e., the best match to the template data will be the subject's own replication data).

### Method

Experimental task. Volition is a PsiLab// RNG-sampling video